

***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 21 September 2007 has been entered.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 15, 16, 18, and 20-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sommer, 4,955,163 in view of Nagata, 5,343,626 and Pflager et al, 5,443,413. '163 discloses an apparatus for polishing side faces of grooves formed on a workpiece comprising: a fixture, figures 12, 14 and 15, for fixing the workpiece; a rotating shaft disposed in a horizontal direction of the fixture; a rotary driving unit for rotating the rotating shaft; a disc polishing element having abrasive grains thereon for polishing the side faces of the grooves, figure 10, the polishing element being fixed to the rotating shaft; wherein the disk polishing element has the abrasive grains on a side face thereof for polishing the workpiece, figure 10, and the disk polishing element further comprises abrasive grains at a peripheral edge thereof for cutting the workpiece,

figure 10; a driving unit, figure 14, for moving at least one of the rotating shaft and the workpiece in the vertical direction, horizontally in the longitudinal direction of the rotating shaft, and in the longitudinal direction of the grooves along the side faces of the grooves, so that the polishing element reciprocates and rotates; and a detector, column 12, lines 30 through column 14, lines 33, for detecting the position where the polishing element is in contact with the workpiece. Note that by detecting the position of the carriages, the position where the polishing element is in contact with the workpiece is detected. '163 does not disclose moving the rotating shaft and/or workpiece horizontally in the longitudinal direction of the grooves. In order for the shaft and/or workpiece to be moved horizontally in the longitudinal direction of the grooves, the workpiece of '163 must be placed so that its longitudinal axis is horizontal, so that the grooves have a horizontal component. '626, in a similar device, figure 2, teaches that it is old and well known to mount a grooved workpiece such that the grooves have a horizontal longitudinal direction along the side faces of the grooves. It would have been obvious to one of ordinary skill in the art to have provided '163 with the workpiece placement taught by '626, figure 2, with the workpiece oriented so that the grooves have a longitudinal, horizontal component, since it has been held that rearranging parts of an invention involves only routine skill in the art. In re Japikse, 86 USPQ 70. '163 does not disclose that the detector for detecting the position where the grinding element is in contact with the work piece is a sensor detecting at least one of a magnetic field and a current of the rotary driving unit. In a grinding apparatus, '413 teaches that Hall effect sensors (measuring magnetic field) are old and well known for measuring the position of

one element relative to another, column 3, lines 9-11. It would have been obvious to one of ordinary skill in the art to have provided '163 with a Hall sensor as the sensor to measure the position of the polishing element relative to the workpiece, as taught by '413, column 3 lines 9-11, as one of many known position sensors available to applicant at the time the invention was made, to allow accurate sensing of the position of the tool. Further, '163 does not disclose the cutting depth of the abrasive grains. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have provided '163 with grains having a size in the claimed range, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233. Here, the size of the grain can be dependent on the properties of the material being processed, the desired processing time, and the desired surface finish.

#### ***Response to Arguments***

4. Applicant has not presented any arguments with the filing of the RCE.

#### ***Conclusion***

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maurina Rachuba whose telephone number is 571 272 4493. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Hail can be reached on 571 272 4485. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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